

129513-1

REMARKS

Claims 1-32 are pending in the present Application.

Applicants appreciate the Examiner's attempt to address apparent issued with the specification. Applicants filed the application electronically using the Electronic Filing System. A review of our electronic copy shows a specification containing 47 paragraphs, the claims as listed above and an abstract. Applicants are unsure of what footnote the Examiner is referring to when he states "it is confusing that the footnote indicates that there are totally 31 pages" (Page 2 of August Office Action). Applicants respectfully note that pagination between a document printed in our office and a document printed at the USPTO may differ due to printer settings, hence the USPTO's decision to require paragraph numbering when electronic filing was instituted.

Reconsideration and allowance of the claims are respectfully requested in view of the following remarks.

Claim Rejections Under 35 U.S.C. § 103(a)

Claims 1-18 and 32 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over U.S. Patent No. 5,714,550 to Shaw in view of Properties of Polymers by Krevelen (pages 523-525) and Physical Properties of Polymers by Bueche (pages 112-116 and 295-303). Applicants respectfully traverse this rejection.

Shaw discloses a composition comprising a blend of polyamide and polyphenylene ether, a polysiloxane and a boron compound. In the Background of the Invention (Col. 1, lines 23-28) Shaw discloses a general desire for polymer blends having higher heat deflection temperatures. Shaw further discloses that the claimed compositions have improved heat resistance as demonstrated by having a Vicat temperature greater than about 200°C (Col. 2, lines 17-18). Shaw also points out that organic phosphorous compounds can have a negative impact on Vicat temperature (Col. 2, lines 39-44), thus emphasizing the importance of flame retardant selection when heat resistance is important. Shaw is completely silent with regard to the molecular weight of the polyamide employed in the composition.

129513-1

Bueche discusses the relationship between polymer molecular weight and glass transition temperature, which, in general, can be summarized as the higher the molecular weight of a given polymer, the higher the glass transition temperature. Krevelen teaches that at the heat distortion temperature "the polymer begins to deform at a rapid rate over a narrow temperature interval" and the heat distortion temperature is near the glass transition temperature. (Krevelen, page 524). The Examiner has combined the teachings of Krevelen and Bueche to support the assertion that it would have been obvious to use a polyamide "with whatever weight average molecular weight through routine experimentation in order to obtain a polyphenylene ether composition with proper heat deflection properties." (Office Action Page 3).

For an obviousness rejection to be proper, the Examiner must meet the burden of establishing a prima facie case of obviousness. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988). Establishing a prima facie case of obviousness requires that all elements of the invention be disclosed in the prior art. *In Re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970). Further, even assuming that all elements of an invention are disclosed in the prior art, an Examiner cannot establish obviousness by locating references that describe various aspects of a patent applicant's invention without also providing evidence of the motivating force which would have impelled one skilled in the art to do what the patent applicant has done. *Ex parte Levengood*, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. Int. 1993). The references, when viewed by themselves and not in retrospect, must suggest the invention. *In Re Skoll*, 187 U.S.P.Q. 481 (C.C.P.A. 1975). (emphasis added)

Applicants respectfully point out that neither the cited references nor their combination contain all the elements of the claimed invention, notably use of a polyamide having a weight average molecular weight greater than or equal to 75,000 as determined by gel permeation chromatography using polystyrene standards. Furthermore, Shaw teaches that the choice of flame retardant is important to producing a flame retardant material with a Vicat greater than about 200°C and does not even suggest a relationship between polyamide molecular weight and flammability. Shaw is completely silent with regard to polyamide molecular weight.

129513-1

Bueche and Krevelen teach that higher molecular weight polymers have higher glass transition temperatures and higher softening temperatures than polymers of the same chemical composition that have lower molecular weights. Bueche and Krevelen do not teach any sort of relationship between molecular weight and flame retardance, particularly the flame out time. Applicants believe that the Examiner has impermissibly employed hindsight to find aspects of the claimed invention in the prior art and connect them together. The prior art, taken by itself, does not teach or suggest the instantly claimed composition.

The Examiner has asserted that the Applicants have not shown the criticality of the polyamide molecular weight. Applicants strenuously disagree. Comparative Examples 1 and 2 demonstrate the difference in flame retardant behavior between a composition having lower molecular weight polyamide (62,593) without an impact modifier (Comparative Example 1) and a composition having lower molecular weight polyamide (62,593) with impact modifier. As can be seen by comparing the average flame out time (FOT) per bar, Comparative Example 2, which contains the impact modifier, has a FOT almost twice that of Comparative Example 1. It's reasonable to expect that similar compositions employing high molecular weight polyamide (in this case 82,025) would exhibit a similar phenomenon, namely that the composition comprising an impact modifier would exhibit significantly decreased fire retardance compared to the composition without impact modifier. Unexpectedly they don't. Example 1 which comprises high molecular weight polyamide and an impact modifier has an average FOT approximately the same as Comparative Example 3 which comprises high molecular weight polyamide but not impact modifier. Thus flame retardance can be achieved in compositions containing an impact modifier without a loss in physical properties due to the presence of additional flame retardant.

Furthermore the Examiner has asserted that there is a relatively "narrow range of the molecular weight difference". Applicants respectfully note that typically methods of determining molecular weight of polymers have a standard deviation in the range of about 300. This fact should be taken into consideration when evaluating the molecular weight ranges and values given within the specification. Furthermore, a molecular weight of 75,000 represents about a 20% increase in molecular weight when compared to a molecular weight of

129513-1

62,592. In contrast a molecular weight of 82,025 is a less than 10% increase in molecular weight when compared to 75,000. And finally, 82,025 represent an increase of over 30% when compared to a molecular weight of 62,592. Applicants assert that neither a 20% or 30% difference can reasonable be described as small, particularly in values that have a standard deviation of less than 0.5%. Applicants assert that the criticality of the ranges has been amply demonstrated and the pending claims are non-obvious.

Claims 1-30 and 32 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over U.S. Patent No. 4,600,741 to Aycock, as evidenced by Krevelen and Bueche in view of Shaw. Aycock is directed to a particular method of compatibilization for polyphenylene ether/polyamide resin blends. Aycock, similar to Shaw, does not teach or suggest use of a polyamide having a weight average molecular weight greater than or equal to 75,000 as determined by gel permeation chromatography using polystyrene standards. Accordingly the combination of Aycock, Krevelen, Bueche and Shaw does not support a prima facie case of obviousness for at least the reasons described above.

Claims 1-31 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over U.S. Patent No. 4,600,741 to Aycock, as evidenced by Krevelen and Bueche in view of Shaw and further in view of U.S. Patent No. 5,000,897 to Chambers. Chambers does not teach or suggest use of a polyamide having a weight average molecular weight greater than or equal to 75,000 as determined by gel permeation chromatography using polystyrene standards and hence the cited references provide an inadequate basis for a prima facie case of obviousness.

129513-1

It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. Accordingly, reconsideration and allowance are requested.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 07-0862.

Respectfully submitted,

CANTOR COLBURN LLP

By *Patricia S. DeSimone*
Patricia S. DeSimone
Registration No. 48,137

Date: November 23, 2004
Telephone (860) 286-2929
Facsimile (860) 286-0115
Customer No.: 23413